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Viticulture becomes fit for climate change

Warmer winters, hot and dry summers, local heavy rainfall: winegrowers also have to deal with the challenges of climate change. Earlier budbreak after a mild winter, for example, poses the threat of late frost, which can cause considerable damage to the vines. During long dry periods, they are more often under drought stress, which results in fewer berries, among other things. Heavy rain can wash away the soil and an overall milder climate favours the immigration of new pests.

The international LIFE VineAdapt project aims to provide practical insights to make viticulture fit for climate change. Increasing biodiversity and adapting vineyard management are crucial for this. Eight practice and research partners from Germany, France, Austria and Hungary have joined forces in the project. It is co-financed with funds from the European environmental programme LIFE and the Ministry of Economics, Tourism, Agriculture and Forestry of Saxony-Anhalt. The Landgesellschaft Sachsen-Anhalt mbH acts as coordinating partner.

The interim results of the project were recently presented at an international workshop in Saxony-Anhalt. In addition, renowned experts gave a wide range of presentations on sustainable viticulture. In addition, winegrowers and representatives of winegrowing associations, scientific institutions and authorities finally worked out recommendations for climate-adapted viticulture.

In order to increase biodiversity in vineyards and to improve soil and water retention, site-adapted wild plant mixtures were sown in 44 vineyards in the LIFE VineAdapt project. Plant diversity was shown to be significantly higher in these vineyards. There were also more ladybirds and spiders that exterminate pests, as well as more wild bees. Other research projects also found that permanent vegetation cover leads to less soil erosion and greater wild bee diversity, as confirmed by Dr Silvia Winter from the University of Natural Resources and Applied Life Sciences in Vienna.

The LIFE VineAdapt project also tests various methods to avoid pesticides, such as the use of pelargonic and acetic acid and mechanical treatment of the understock area. Mechanical treatment proved to be the most effective and economical option. The acid applications were too expensive and had to be carried out too often. Johannes Kiefer, owner of a winery in Eichstetten am Kaiserstuhl, explained how viticulture can function without pesticides. Among other things, he relies on the cultivation of robust grape varieties, so-called piwis, on greening the vineyard alleys and plant strengthening with natural substances such as algae.

In addition, the topic of resource-efficient fertilisation played a major role. In the LIFE VineAdapt project, different fertilisation methods such as above-ground mineral fertilisation, below-ground mineral fertilisation and organic fertilisation with sheep wool pellets are compared. So far, however, no significant differences have been shown

contact: Landgesellschaft Sachsen-Anhalt mbH · Große Diesdorfer Straße 56/57 · 39110 Magdeburg
Isabel Reuter · phone: 0391 7361712 · E-Mail: reuter.i@lgsa.de · www.life-vineadapt.eu

between the different methods in terms of yield, vine vigour, etc. Further investigations must follow. Dr Maximilian Tafel from the Geisenheim University of Applied Sciences explained that winegrowers are committed to more biodiversity in the vineyard because they are concerned about healthy vines. The prerequisite for this is healthy soil, which is why it is worthwhile to determine the most minimally intensive fertilisation method.

The LIFE VineAdapt project also compares above-ground and underground irrigation. Irrigation was found to have no effect on plant diversity, plant composition and wild bee abundance. However, the coverage of flowering plants was lower, which is why there were also fewer spiders, wasps and ladybirds, i.e. important pest exterminators, in irrigated vineyards. Dr. Daniel Heßdörfer from the Bavarian State Institute for Viticulture and Horticulture emphasised in his lecture that moderate irrigation has proven to be the best option in his research projects and that resource-saving irrigation is still the most effective method for reducing drought stress. Steep slope viticulture in particular is already only possible to a limited extent without irrigation.

Finally, the LIFE VineAdapt project aims to evaluate the services provided by the vineyard as an ecosystem, e.g. grape production and carbon storage. In his lecture, Prof. Dr. Markus Meyer from the Anhalt University of Applied Sciences recommended that the various ecosystem services should not be considered individually, but together.

Frederik Klodt from the State Viticulture Institute Freiburg presented an interesting possibility to achieve a double benefit on vineyard land. Photovoltaics over wine could be another source of income for winegrowers, but so far it is only economically viable with the help of subsidies. No negative influences on insects, birds and mammals were found on the first experimental plots. The microclimate as well as soil and water retention even improved.

For more information and to download the workshop presentations: https:// www.life-vineadapt.eu/en/aktuelles

To our photo: Recommendations for climate-adapted viticulture developed by participants of the second part of the workshop at the Landesweingut Kloster Pforta in Bad Kösen. (Photo: Weinreiter/LGSA)

contact: Landgesellschaft Sachsen-Anhalt mbH · Große Diesdorfer Straße 56/57 · 39110 Magdeburg Isabel Reuter · phone: 0391 7361712 · E-Mail: reuter.i@lgsa.de · www.life-vineadapt.eu